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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Ofir Shalvi

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EXAMINER

CORRIELUS, JEAN B

ART UNIT

PAPER NUMBER

2611

NOTIFICATION DATE

DELIVERY MODE

05/22/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto@ti.com  
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<b>Office Action Summary</b>	<b>Application No.</b> 09/493,526	<b>Applicant(s)</b> SHALVI ET AL.	
	<b>Examiner</b> Jean B. Corrielus	<b>Art Unit</b> 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 April 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5 and 6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5 is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 6 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 April 2008 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114 was filed in this application after a decision by the Board of Patent Appeals and Interferences, but before the filing of a Notice of Appeal to the Court of Appeals for the Federal Circuit or the commencement of a civil action. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 4/16/08 has been entered.

### ***Drawings***

2. The drawings were received on 4/16/08. These drawings are not acceptable for the reasons set forth below.

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the plurality of convolutional encoder; each of the plurality of convolutional encoder concatenated with an outer RS encoder; the interleaver memory, the bit interleaver interconnected with said convolutional encoder; and a symbol mapper interconnected with said bit interleaver, as recited in claim 1, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Claim Objections***

4. Claims 1-3 and 6 are objected to because of the following informalities: Claim 1, line 7, "convolutional encoder" should be amended to make use of its antecedent in line 3. claim 3, line 2, "CAN" should be replaced by "CATV". Appropriate correction is required.
5. Claim 6 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is

required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 6 fails to further limit claim 1 because claim 1 includes every limitation of claim 6.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1, 2 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, line 5, the limitation "each encoder", is vague and indefinite because it is unclear where "the encoder" refers to the "convolutional encoders" or the "RS encoder". As per claim 6, the limitation "a plurality of convolutional encoders" is vague and indefinite as there is an unclear antecedent in claim 1, line 3; line 3, the limitation "an interleaver memory" is vague and indefinite as there is an unclear antecedent in claim 1, line 5; line 4, "a portion" is vague and indefinite as there is an unclear antecedent in claim 1, line 5.

Claim 2 is likewise objected because of its dependency to claim 1.

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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9. Claims 1, 2 and 6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 recites "a plurality of convolutional encoders for receiving data values, each of said convolutional encoder concatenated with an outer Reed-Solomon encoder; an interleaver memory, wherein each encoder ,generates a portion of the data values to said interleaver memory; a bit interleaver interconnected with said convolutional encoder; and a symbol mapper interconnected with said bit-interleaver." However, the original specification does not support an embodiment for the combination of components as claimed, the specification only teaches at page 5, line 2, that the encoder, (presumably the encoder shown in fig. 1) may employ a multiple convolutional encoder. However, the embodiment of fig. 1 does not show a structure where a RS encoder is concatenated with each convolutional encoder. In addition, the embodiment of fig. 1 or any other embodiment does not show the output of the encoder provided to a RS encoder (concatenated) and to a bit interleaver memory. The only embodiment showing the output of the convolutional encoder provided to a "bit interleave memory logic" is fig. 4. However, in fig. 4, does not support the configuration of a plurality of convolutional encoders each concatenated with a RS encoder. In addition, there is no support for embodiment where each encoder (presumably the convolutional encoders) is

connected to a bit interleaver. As per claim 6, see claim 1. Claim 2 is rejected as in claim 1.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1, 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vijayan et al US patent No. 6, 151,296 in view of Campanella et al US patent Publication No. 2001/0017849 further in view of Schilling US patent Publication S/N 2004/0223536.

As per claim 1, Vijayan et al discloses a transmitter (fig. 2) comprising a convolutional encoder 26 for receiving data values; said encoder 26 coupled to (concatenated with) an outer Reed-Solomon encoder 22 (see abstract); a bit-interleaver 28 interconnected with the convolutional encoder 26; a symbol mapper 32 interconnected with said bit interleaver 28. However, Vijayan et al fails to teach a plurality of convolutional encoder each concatenated with a RS encoder and a memory coupled to the encoder to store values generated by the encoder. Campanella teaches a plurality of convolutional encoders 80c and 96c each concatenated with a RS encoder 80a and 96a (see fig. 3). Given that fact, it would have been obvious to one skill in the art to configure Vijayan by providing , a plurality of convolutional encoder each concatenated with a RS encoder and the manner suggested by Campanella in order to

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enhanced system processing speed since the signal for transmission would have been processed in parallel as oppose to being in series. Parallel signal processing as known in the art requires less processing time. In addition, as evidence by Schilling, it is well known in the art to couple an interleaver memory to an interleaver see fig. 3, element 13. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Vijayan and Campanella so that interleaved data can be stored for future use.

As per claim 2, the mapper 32 is a QAM mapper see fig. 2.

As per claim 6, see claim 1.

### ***Allowable Subject Matter***

12. Claim 5 is allowed.

13. Claim 4 would be allowable if amended to overcome the objection set forth above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Corrielus whose telephone number is 571-272-3020. The examiner can normally be reached on Monday-Thursday from 9:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jean B Corrielus/  
Primary Examiner  
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